IS 11889 (1987): Booths for Simultaneous Interpretation - General Characteristics and Equipment [LITD 7: Audio, Video and Multimedia Systems and Equipment]

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Indian Standard

BOOTHS FOR SIMULTANEOUS INTERPRETATION — GENERAL CHARACTERISTICS AND EQUIPMENT

Acoustics Sectional Committee, LTDC 5 [Ref : Doc : LTDC 5 (1055)]

National Foreword

This Indian Standard which is identical with ISO 2603 'Booths for simultaneous interpretation — General characteristics and equipment', issued by the International Organization for Standardization (ISO), was adopted by the Indian Standards Institution on the recommendation of Acoustics Sectional Committee and approval of the Electrotechnical Division Council.

In this standard, certain terminology and conventions are not identical with those used in Indian Standards; attention is specially drawn to the following:

Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use point (·) as the decimal marker.

Cross Reference

In this Indian Standard, the following International Standards are referred to. Please read in their respective place the following Indian Standards:

International Standard	*Corresponding Indian Standard*
ISO 140/4, Acoustics — Measurement of sound insulation in buildings and of building elements — Part 4 Field measurements of airborne sound insulation between rooms	IS : 9901 (Part 4)-1981 Measurement of sound insulation in buildings and of building elements: Part 4 Field measurements of airborne sound insulation between rooms
IEC Pub 268-8, Sound system equipment — Part 8 Automatic gain control devices	IS : 9302 (Part 7)-1987 Characteristics and methods of measurements for sound system equipment: Part 7 Automatic gain control devices

Adopted 15 January 1987

Gr 5

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0 Introduction

ISO 2603 was first issued in 1974 and it has found general application. This revised edition is extended in scope to cover facilities for more than six languages and is based on facilities built since that date and evaluated by the Technical Committee of the International Association of Conference Interpreters (AIIC).

Interpreters' booths are designed to meet three requirements :

a) acoustic separation between different languages spoken simultaneously;

b) efficient two-way communication between the booths and the conference hall;

c) a comfortable working environment allowing interpreters to maintain the intense effort of concentration required by their work.

In addition to architects, project engineers, suppliers etc., it is essential to consult conference interpreters experienced in technical consultancy.

1 Scope and field of application[1)]

This International Standard lays down basic specifications to be considered when initial plans are prepared to provide a new or existing building with built-in facilities for simultaneous interpretation. It is applicable to all types of built-in booths with built-in or portable equipment.

In designing new buildings, booths should be optimally integrated into the structure so that the conference room and booths constitute a well-balanced unit.

The requirements of clauses 4 and 5 apply to booths with built-in equipment, as defined in 3.1, and booths with portable equipment, as defined in 3.2.

The dimensional requirements apply equally to semi-permanent booths, as defined in 3.3, for which all other requirements should apply as far as is possible.

In addition to structural specifications, this International Standard specifies those components of typical conference facilities which form the interpreter's working environment.[2)]

An annex concerning public address and simultaneous interpretation systems is given for information only.

2 References

ISO 140/4, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 4 : Field measurements of airborne sound insulation between rooms.*

IEC Publication 268-8, *Sound system equipment — Part 8. Automatic gain control devices.*

3 Definitions

For the purposes of this International Standard, the following definitions apply :

3.1 booth with built-in equipment : A booth intended for simultaneous interpretation containing built-in interpretation equipment.

3.2 booth with portable equipment : A booth intended for simultaneous interpretation but not containing built-in interpretation equipment.

3.3 semi-permanent booth : A booth not structurally integrated or which it is intended to move within the building.

1) Mobile installations for simultaneous interpretation are specified in ISO 4043, *Booths for simultaneous interpretation — Mobile booths — General characteristics and equipment.*

2) Minimum requirements for conference systems for simultaneous interpretation will form the subject of a future IEC Publication.

4 Structural requirements for booths

4.1 Siting in relation to the conference hall

4.1.1 General

Booths shall be located at the back of the hall, or down one side. However, in larger halls, the furthest distance to the rostrum shall not exceed 30 m (see 4.5). They shall be elevated to afford an overall view of the hall (windows across the full width of the booths). It is particularly important for the interpreters and operator to be able to see clearly the speakers, chairman, and all visual aids (projection screens, maps, flip-charts, blackboard, etc). Visibility from the booths should not be impeded by persons standing. However, booths should not be elevated more than the minimum amount required to satisfy the above requirements. Steep angles should be avoided (see 4.5).

The booths shall be grouped to allow visual contact and to facilitate cabling between them (see 4.9).

4.1.2 Sound control booth

The sound control booth shall be placed close to the interpreters' booths to facilitate communication and provide the operator with a good view of the hall. The operator shall have safe, quick and easy access both to the booths and to the hall.

4.2 Doors

Doors shall provide satisfactory acoustic insulation (see 4.7). They shall not interconnect booths through side-walls. An observation port-hole in the booth door is useful.

Assigned languages and channels should be indicated on or adjacent to doors.

Curtains or baffles shall not be used.

4.3 Accessibility

The booths shall have easy access through a separate entrance from outside the hall, to avoid the interpreters disturbing the meeting when coming and going. Stairs, if any, should be safe. Emergency exits shall be readily accessible, and escape routes clearly marked. There should be rapid access from the booths to the hall.

4.4 Size of booths

4.4.1 General

Each booth shall accommodate the required number of interpreters seated in comfort side by side (to cater for large teams with numerous language combinations requiring more than one outgoing language).

Each booth shall be sufficiently wide to allow occupants to enter and leave without disturbing one another, and high and deep enough to provide adequate volume.

4.4.2 Minimum dimensions (see figures 1 and 2)

In facilities for up to 6 languages, the following minimum dimensions are required :

- width : 250 cm
- height : 230 cm
- depth : 240 cm

In facilities for 6 to 12 languages, the first six booths shall be 250 cm wide (3 interpreter positions per booth) and the remaining booths shall be 340 cm wide (4 interpreter positions per booth).[1)]

To avoid resonance effects, the three dimensions of the booth should be different from one another.

For the sound control booth, it may be desirable to provide a larger width depending on equipment dimensions.

4.5 Visibility

A direct view of the entire conference room, including the projection screen, is essential. For very large halls, television monitors may be used for visual support. Monitors shall permit convenient viewing with minimum eyestrain. Particular attention shall be given to possible radiation hazards at close viewing distances.

4.6 Windows (see figures 1 and 2)

Front windows shall be across the full width of the booth. The height of the pane shall be 80 cm and its lower edge shall be flush with the top of the control panel/console.

Side windows shall be provided of the same height and shall extend from these for a length of 95 cm along the partition.

To ensure maximum viewing angle, thick frames, mullion posts or bearing elements should be avoided in the area between front and side windows.

Front and side windows shall consist of untinted glass satisfying sound-insulation requirements (see ISO 140/4). If a single pane is used, it shall be of adequate thickness. The (inner) front pane should be inclined with its upper edge towards the hall to avoid acoustic reflexion and mirror effects. The panes should be flexibly mounted.

In double-pane constructions, provision shall be made for convenient opening to clean the inside surfaces and for maintenance.

4.7 Acoustics

For normal non-reinforced speech not exceeding an A-weighted sound pressure level in the conference room of 80 dB, the equivalent continuous A-weighted sound pressure level of the noise inside each booth shall be less than 35 dB.

1) Existing facilities for more than six languages, built in accordance with ISO 2603-1974 and in situations where it is not possible to enlarge booth dimensions, may continue to be operated using ISO 2603-1974 as a reference.

Particular attention should be given to sound-proofing between booths and towards the control booth.

The booths should open onto an area not normally used by delegates or members of the staff and should not be adjacent to any source of noise. Booths and corridor should in any case be carpeted.

Reverberation time inside the booth shall not exceed 0,5 s for frequencies greater than 125 and up to 4 000 Hz.

Reverberation and sound reflection shall be reduced by using suitable anti-static sound-absorbing materials.

The A-weighted sound pressure level generated by the air-conditioning system (see 4.8), lighting (see 5.1) and other sound sources shall not exceed 35 dB.

4.8 Air conditioning

As booths are occupied throughout the day, adequate ventilation is required.

Air renewal shall be seven times per hour and the carbon dioxide concentration shall not exceed 0,10 %. The temperature shall be controllable between 18 and 22 °C by means of an individual regulator in each booth. The relative humidity shall be between 45 and 65 %.

The air velocity shall not exceed 0,2 m/s. Air inlets and outlets shall be placed in such a way that interpreters are not exposed to draughts.

4.9 Cable ducts

Ducts suitable for looping control cables and associated connectors from booth to booth shall be provided. After insertion of cables, the openings shall be made sound-proof.

Access to ducts should be made easy and should not require the use of special tools.

5 Booth interior

5.1 Lighting

The lighting in the booth shall be independent of that in the hall, as the latter may have to be darkened for the projection of films or slides.

The main light source is that illuminating the working surface. Ceiling lights are required for background lighting or for cleaning.

The working surface available to each interpreter (0,4 m^2) shall have individual lighting to produce a uniform intensity of at least 300 lx. The switch shall be within easy reach of the interpreter; it should preferably give continuous intensity control over a range from 100 to 1 000 lx, or alternatively give two levels : one in the range 100 to 200 lx, and one better than 300 lx. Dimmers should be free from radio-frequency or mechanical interference.

The tilting range of the lamp reflector should be limited to avoid glare in adjacent working positions or into the hall.

Overhead general lighting should be controlled by a dimmer located close to the door inside each booth and readily accessible to the seated interpreter. Reflection of overhead lighting in panes should be avoided.

Fluorescent tubes shall not be used unshielded.

5.2 Colours

The colour scheme in the booth should be suitable for the restricted working space. Matt finishes should be used for all surfaces and equipment in the booth.

5.3 Working surface (see figures 1 and 2)

The working surface should be sufficiently firm for use as a writing table and for perusing documents.

It shall be horizontal and covered with shock-absorbing material to deaden noise which would otherwise be picked up by the microphones. The underneath surface should have a smooth finish.

The characteristics of the working surface are as follows :

- positioning : beneath the front window;
- height : 73 ± 1 cm from the floor level of the booth;
- useful depth : from 35 to 50 cm in relation to the interpreter's angle of vision into the hall;
- leg room : minimum depth 50 cm, minimum height 66 cm.

Shelving or trays for documents should not be placed under the working surface but preferably above the window or on the rear walls.

5.4 Seating

For each interpreter and technician, there should be a comfortable chair with the following features :

- five legs;
- adjustable height;
- adjustable back-rest;
- arm-rests;
- noiseless casters;
- upholstery of heat-dissipating material.

Foot-rests may be required.

Dimensions in centimetres

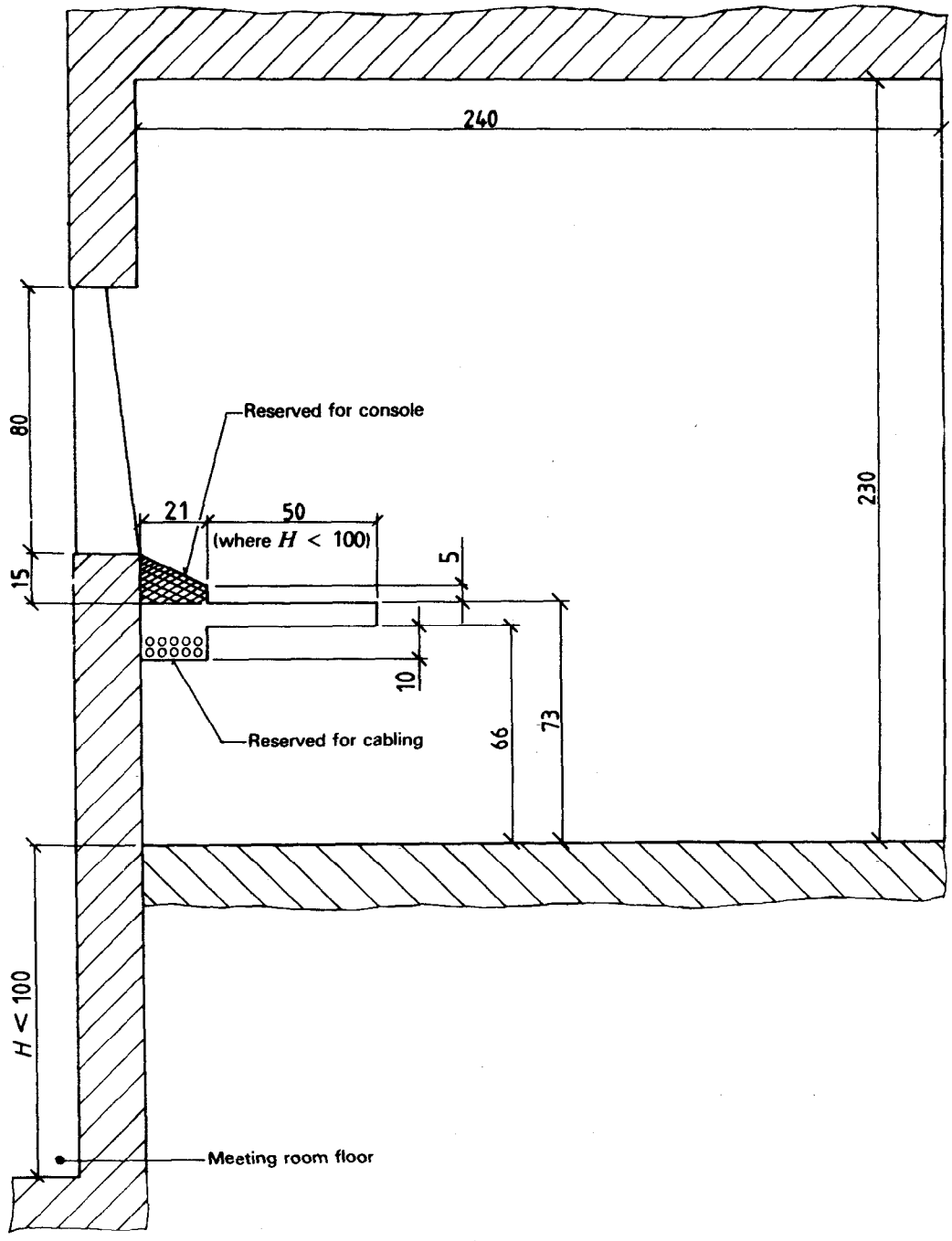

Figure 1 — Schematic layout for a booth at elevation less than 100 cm
(illustrating a free-standing console arrangement)

Dimensions in centimetres

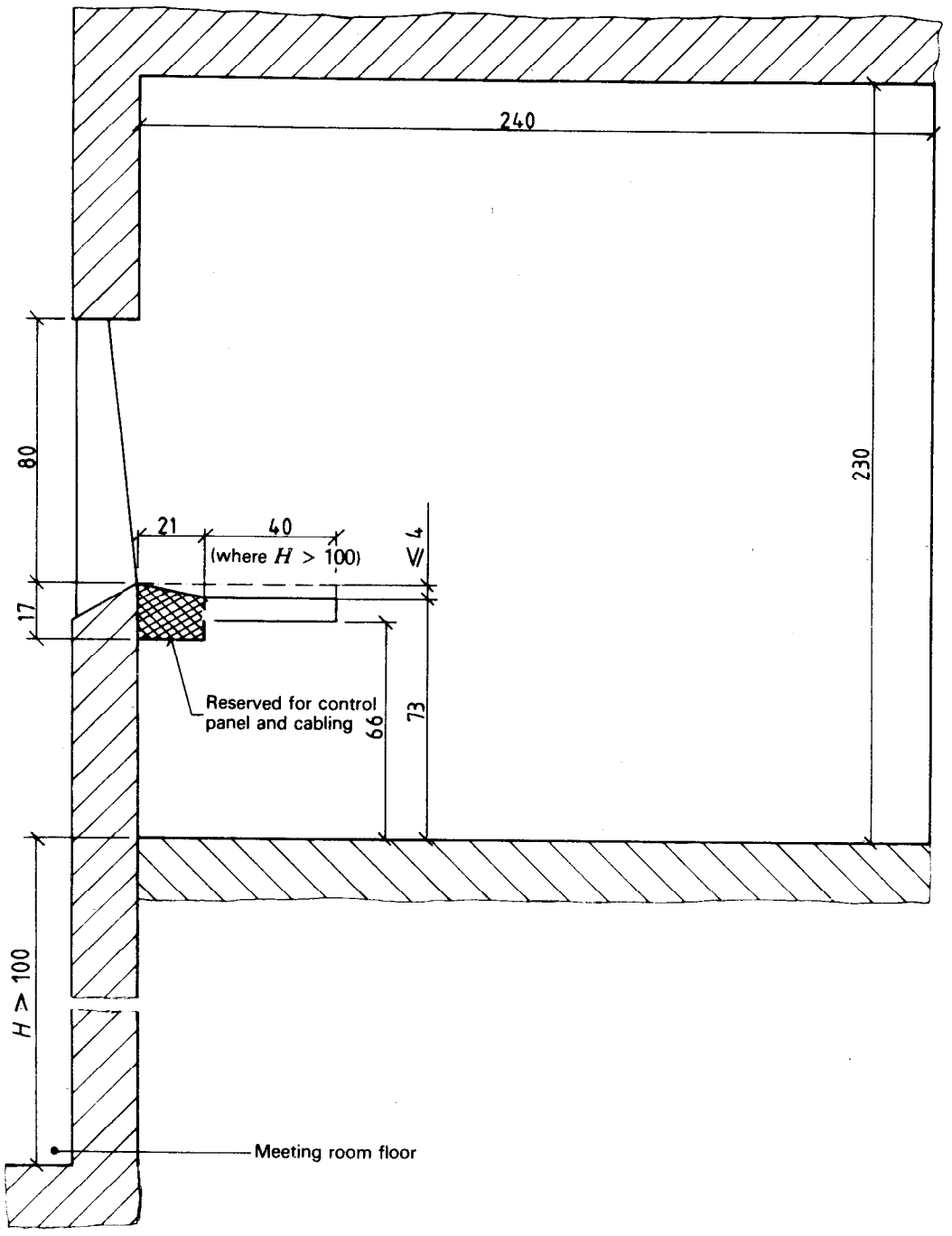

Figure 2 — Schematic layout for a booth at elevation higher than 100 cm
(illustrating a flush-mounted control panel arrangement)

6 Facilities for interpreters

6.1 Toilets

Separate toilets should be available within easy reach of the booths.

6.2 Interpreters' room

It is desirable to provide near the booths an interpreters' room which interpreters and operators may use when not on immediate duty. It shall have daylight and shall be sufficiently large to accommodate at least as many persons as there are working positions in the booths. It should have a private entrance.

It is preferable to divide this room into two areas serving the following purposes :

a) study of documents and posting of notices;

b) relaxation and stand-by.

The following equipment and furnishings are required :

— easy chairs, chairs and tables,

— cloakroom or coat-rack;

— telephone (inside and local outside lines);

— notice board (for posting assignments, etc.);

— individual pigeon-holes.

7 Sound equipment in the interpreters' booths[1)]

7.1 Frequency response

The overall system (comprising microphone input at the speaker's position, amplifier stages, level controls, output terminals and interpreters' control panel for headset) shall correctly reproduce audio-frequencies between 125 and 12 500 Hz. A gradual roll-off at the lower end of the frequency response is recommended in order to improve speech intelligibility.

7.2 Amplitude non-linearity

The system shall be free of perceptible distortion.

7.3 Noise and hum

Noise and hum shall not noticeably affect speech intelligibility.

7.4 Cross-talk between channels

Cross-talk from other channels (at the terminals for the interpreter's headphone) shall be avoided. Damping shall be > 66 dB at 1 kHz.

7.5 Level control

Level control of the floor channel should preferably be manual. When automatic level control is used, compressor-limiters shall conform to IEC Publication 268-8.

Satisfactory operation of the conference/interpretation equipment depends on observation of electrical and/or magnetic interference requirements. These will form the subject of a future IEC publication.

8 Interpreters' control panel/console

8.1 General

A control panel/console containing individual controls for listening and speaking, together with corresponding indicators shall be provided for each interpreter. In the case of portable equipment, dual control panels are permissible.

Control panels shall be mounted between the front window and the working surface (angle of inclination depending on booth elevation vis-à-vis the hall) so as to occupy a minimum area and shall not impede the available working area. Flush mounted control panels and free-standing consoles are equally acceptable.

The maximum control panel dimensions (width × height × depth) shall be :

— in the case of a single control panel :
25 cm × 15 cm × 21 cm;

— in the case of a dual control panel :
40 cm × 15 cm × 21 cm.

The surface of the control panel/console shall be matt and non-reflecting.

Indicator lights shall be confined to active functions (microphone on, channel selected, channel occupied, etc.).

8.2 Controls

All selector controls should have positive action; their position should clearly indicate status.

On each control panel, controls shall be arranged according to ergonomic criteria into distinct areas as follows :

a) the listening area, containing :

— selector for incoming channels,

— pre-selector for relay listening,

— volume control,

— tone control;

1) For definitions and methods of measurement, reference should be made to IEC Publication 268, *Sound system equipment*, and for minimum requirements to the IEC Publication on minimum requirements for conference systems (in preparation).

b) the monitoring area, containing (optional) :

— monitoring loudspeaker with volume control;

c) the microphone area, containing :

— activating device,

— deactivating device whereby the channel is automatically returned to the floor channel,

— muting device;

d) the outgoing channel selection area, containing :

— keys for selecting outgoing channels;

e) the call facility area, containing :

— call-channel key to chairman/lecturer/control booth,

— call-line key (messenger) (optional).

9 Functions of controls

9.1 Incoming channel selector

Selectors shall operate smoothly and shall cause no mechanical or electrical noise. No short-circuiting shall occur between two channels when operating these controls.

9.2 Incoming channel pre-selector

In order to ensure safe and instantaneous changeover from floor to relay channel, a toggle (lever) switch shall be provided which normally supplies the original (floor) channel and, in its relay position, the channel set on the selector.

9.3 Volume control

For adjusting listening levels, potentiometers with logarithmic progression shall be used which are audibly effective throughout their full range. Potentiometers shall be of high quality.

9.4 Tone controls

A stepless bass control shall be provided to attenuate lower frequencies by at least − 12 dB at 125 Hz with respect to 1 kHz. A stepless treble control may also be provided to enhance higher frequencies by at least + 12 dB at 8 000 Hz with respect to 1 kHz.

9.5 Headphone/headset terminals

For each interpreter, one headphone/headset connector socket is required, suitably placed under the working position in permanent installations or on the interpreter's console in portable installations.

9.6 Monitor loudspeaker(s)

The function of the monitor loudspeaker(s) is to allow interpreter(s) to remove their headphone temporarily and continue to follow the proceedings while the booth is silent.

This loudspeaker shall reproduce the floor channel and shall be muted automatically as soon as one of the microphones in that booth is activated; it shall have its own volume control.

9.7 Outgoing channel selector

Each control panel shall have provision for selecting at least two outgoing channels. The status of the channel selector shall be clearly visible. Selector keys shall not be interlocked in the same booth, so as to allow quick take-over when the language spoken in the hall changes.

If the system is designed for selection of all language channels, interlocking between booths is recommended.

Indicator lights or LEDs shall indicate on the other panels in the same and adjacent booths when a given channel is occupied (i.e. when a microphone is activated on this channel).

A holder for inserting language symbols shall be provided close to the channel selector keys.

9.8 Call channel (to chairman/lecturer/control booth)

In the event of breakdown (for example a delegate starting to speak without a microphone or other emergency), interpreters shall be able to warn the chairman and/or lecturer discreetly via a special link terminating in a monitor loudspeaker.

A special key shall activate this link regardless of the microphone switch position.

It is desirable that this warning be transmitted also to the sound control booth.

9.9 Call-line key (messenger)

Provision should be made for a key by which a light or bell may be activated to call for documents, etc., from the usher.

9.10 Colour code for indicator lights

The following colours shall be used for indicator lights or light-emitting diodes (LEDs) :

Colour	Function
red	microphone ON

No luminant should be used for indicating microphone OFF status.

red	outgoing channel, occupation
green or yellow	if required, green or yellow may be used for other functions.

10 Interpreter's headphones

One headphone per interpreter shall be provided. Headphones shall have the following characteristics :

— two earphones, per set. Health requirements should be borne in mind when choosing the material and shape of headphones (the stethoscopic type with earpieces inserted into the ears, or circumaural earphones are unacceptable);

— frequency range : 125 — 12 500 Hz;

— mass : ≤ 150 g for headphone, ≤ 250 g for headset, with the exception of the cable and connector;

— contact pressure : ≤ 2,5 N;

— headband adjustable in width and length;

— connection to the control set by a lead approximately 1,50 m long and termination in a non-locking plug.

11 Booth microphones

11.1 General

There should be one microphone for each interpreter. The directional characteristics of microphones shall be such that the interpreter can speak into it at a convenient distance while in a comfortable position. Microphones mounted on a flexible arm are recommended for their mechanical vibration-insulating properties. For portable equipment, headset combinations may be used.

11.2 Microphone controls

A control switch and a status light shall be provided.

A self-releasing muting key to cut out the booth channel only, without switching back to the floor channel, shall be provided to allow the interpreter to cough or to clear his throat. Pressing of this key shall extinguish the "microphone on" indicator light.

Microphones in the same booth shall not be interlocked.

NOTE — Where a common switch assembly activating two microphones is used on dual control panels, this requirement does not apply.

Switching the microphone "ON" or "OFF" shall make no mechanical or electrical noise perceptible to the delegates.

When the interpreter's microphone is "OFF", the floor channel shall be automatically linked to this channel.

Annex

Public address and simultaneous interpretation systems

(This annex does not form part of the standard.)

Acoustic feedback and echoes in the hall may impair simultaneous interpretation and, in extreme cases, block the memory processes.

Moreover, part of each audience depends on headset reception which may be drowned by loudspeakers when operated at their normal level; therefore, public address systems should not be operated in combination with simultaneous interpretation.

When speech reinforcement cannot be dispensed with (for example, majority of participants listening to conference proceedings in one language), public address systems should be operated at their lowest level and every endeavour should be made to eliminate loudspeaker feedback into microphones placed in the hall.

In order to provide for effective control in such situations, simultaneous (multi-channel) systems and public address (single-channel) systems should :

— have separate volume controls allowing individual level adjustment, independent of each other, whereby lowering the public address level will not reduce the signal strength available to interpreters,

— be fed from a single microphone installation.

Level controls of the two systems should be located close to each other to enable both levels to be monitored in the same room, preferably by the same operator.